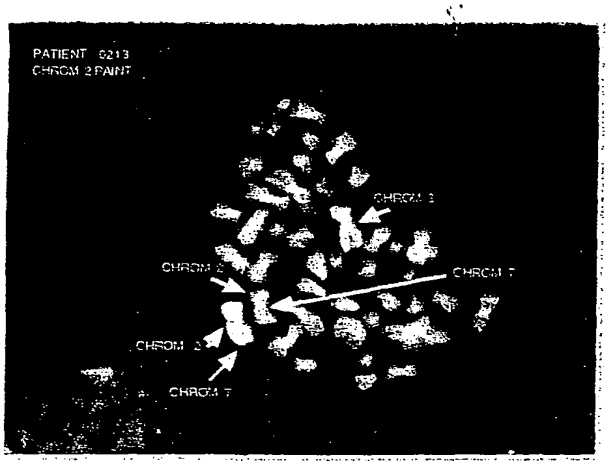

FIGURE 1A

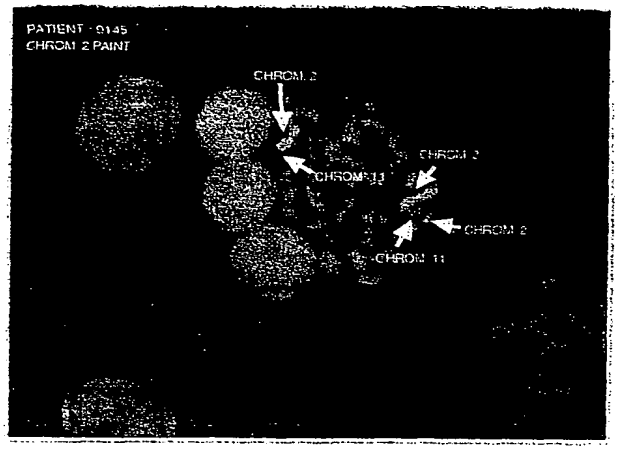

FIGURE 1B

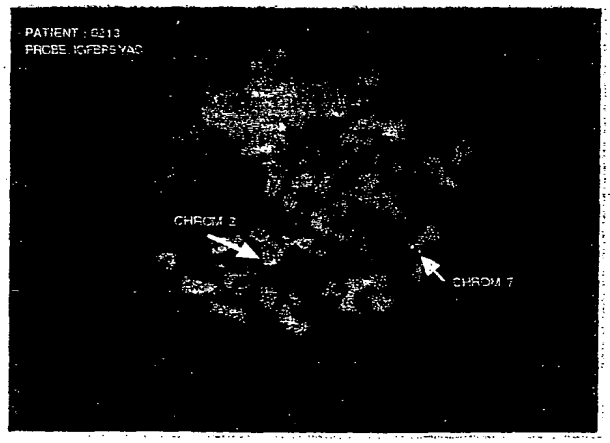

FIGURE 2A

FIGURE 2B

FIGURE 3A

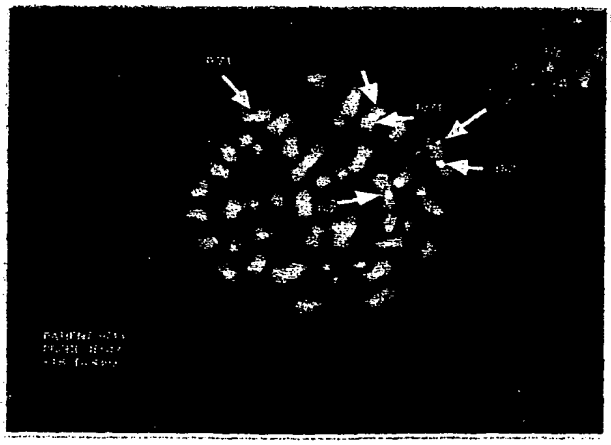

FIGURE 3B

Figure 4

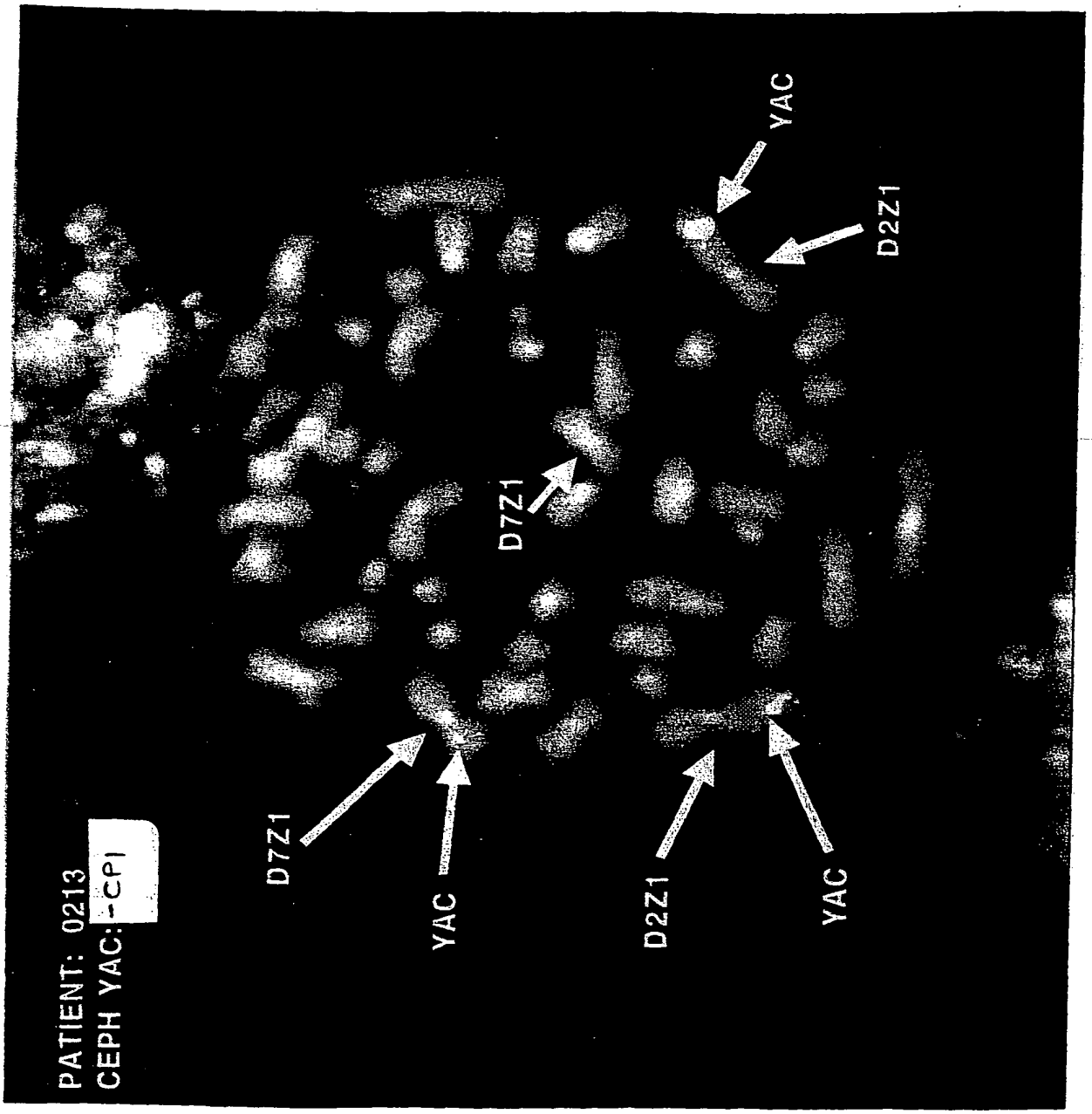

Figure 5

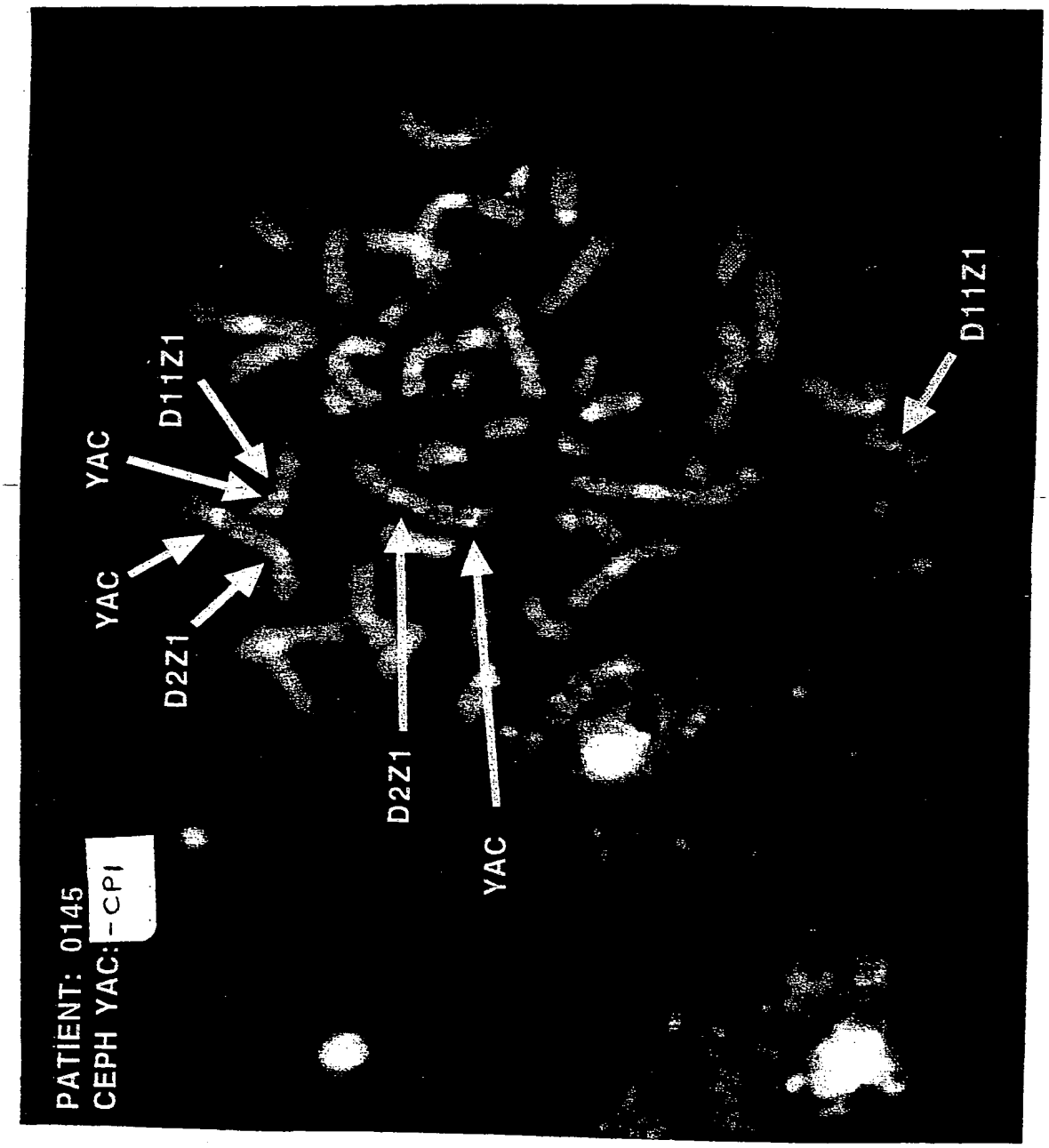

FIGURE 6 SEQ ID NO:1 (Human cDNA)

```
  3 ggaggattcgcagttcaacatcaaggtccctgtgcgttttattgcgacctgccggtggga

 63 actttgtctccgagtcggagcagcatggagcggcggagcgagagcccgtgtctgcgggac
                              M  E  R  R  S  E  S  P  C  L  R  D
123 agccccgaccggcggagcggcagcccggacgtcaaggggcctcccccagtgaaggtggcc
    S  P  D  R  R  S  G  S  P  D  V  K  G  P  P  P  V  K  V  A
183 cggctggagcagaacggcagccccatgggagcccgcgggaggcccaacggcgccgtggcc
    R  L  E  Q  N  G  S  P  M  G  A  R  G  R  P  N  G  A  V  A
243 aaggccgtgggaggtttgatgattcctgtcttttgtgtcgtggagcagttggacggctct
    K  A  V  G  G  L  M  I  P  V  F  C  V  V  E  Q  L  D  G  S
303 cttgaatatgacaacagagaagaacacgccgagtttgtcctggtgcggaaagatgtgctt
    L  E  Y  D  N  R  E  E  H  A  E  F  V  L  V  R  K  D  V  L
363 tttagccagctggtggagactgcgctcctggccctggggtattctcacagctctgcggcc
    F  S  Q  L  V  E  T  A  L  L  A  L  G  Y  S  H  S  S  A  A
423 caggcccaaggaataatcaagctgggaaggtggaaccctctccccctcagttatgtgaca
    Q  A  Q  G  I  I  K  L  G  R  W  N  P  L  P  L  S  Y  V  T
483 gatgcacccgacgcgacagtggccgacatgctacaagatgtctatcatgttgtgacgttg
    D  A  P  D  A  T  V  A  D  M  L  Q  D  V  Y  H  V  V  T  L
543 aaaatccaattacaaagttgttcaaagttggaagacttgcctgcggagcagtggaaccat
    K  I  Q  L  Q  S  C  S  K  L  E  D  L  P  A  E  Q  W  N  H
603 gccacagtccgcaatgccttaaaggaactgctcaaagagatgaaccagagcacattagcc
    A  T  V  R  N  A  L  K  E  L  L  K  E  M  N  Q  S  T  L  A
663 aaagaatgccctctctcccagagtatgatttcatccattgtaaatagcacatattatgcc
    K  E  C  P  L  S  Q  S  M  I  S  S  I  V  N  S  T  Y  Y  A
723 aatgtgtcagcaaccaagtgccaggagtttgggagatggtataaaaagtacaagaagatt
    N  V  S  A  T  K  C  Q  E  F  G  R  W  Y  K  K  Y  K  K  I
783 aaagtggaaagagtggaacgagaaaacctttcagactattgtgttctgggccagcgtcca
    K  V  E  R  V  E  R  E  N  L  S  D  Y  C  V  L  G  Q  R  P
843 atgcatttaccaaatatgaaccagctggcatccctggggaaaaccaacgaacagtctcct
    M  H  L  P  N  M  N  Q  L  A  S  L  G  K  T  N  E  Q  S  P
903 cacagccaaattcaccacagtactccaatccgaaaccaagtgcccgcattacagcccatc
    H  S  Q  I  H  H  S  T  P  I  R  N  Q  V  P  A  L  Q  P  I
963 atgagccctggtcttctttctccccagcttagtccacaacttgtaaggcaacaaatagcc
    M  S  P  G  L  L  S  P  Q  L  S  P  Q  L  V  R  Q  Q  I  A
1023 atggcccatctgataaaccaacagattgccgttagccggctcctggctcaccagcatcct
    M  A  H  L  I  N  Q  Q  I  A  V  S  R  L  L  A  H  Q  H  P
1083 caagccatcaaccagcagttcctgaaccatccacccatccccagagcagttaagccagag
    Q  A  I  N  Q  Q  F  L  N  H  P  P  I  P  R  A  V  K  P  E
1143 ccaaccaactcttccgtggaagtctctccagatatctaccagcaagtcagagatgagctg
    P  T  N  S  S  V  E  V  S  P  D  I  Y  Q  Q  V  R  D  E  L
1203 aagagggccagtgtgtcccaagctgtctttgcaagagtggcattcaaccgcacacaggga
    K  R  A  S  V  S  Q  A  V  F  A  R  V  A  F  N  R  T  Q  G
1263 ttgttgtctgagattctgcgtaaggaagaagaccctcggacagcctctcagtctcttcta
    L  L  S  E  I  L  R  K  E  E  D  P  R  T  A  S  Q  S  L  L
1323 gtaaacctgagggccatgcagaatttcctcaatctgccagaagtggagcgagatcgcatc
    V  N  L  R  A  M  Q  N  F  L  N  L  P  E  V  E  R  D  R  I
1383 taccaggatgagagggagcggagcatgaatcccaatgtgagcatggtctcctcggcctcc
    Y  Q  D  E  R  E  R  S  M  N  P  N  V  S  M  V  S  S  A  S
1443 agcagtcccagctcctcccgaacccctcaggccaaaacctcgacaccgacaacagacctc
    S  S  P  S  S  S  R  T  P  Q  A  K  T  S  T  P  T  T  D  L
1503 cctattaaggtggacggcgccaacatcaacatcacagctgccatttatgacgagatccaa
    P  I  K  V  D  G  A  N  I  N  I  T  A  A  I  Y  D  E  I  Q
1563 caggagatgaaaagggccaaggtgtctcaagccctgtttgccaaagtggctgcaaataaa
    Q  E  M  K  R  A  K  V  S  Q  A  L  F  A  K  V  A  A  N  K
```

```
1623 agtcagggctggctgtgtgaactgctccgctggaaggagaacccaagcccagaaaaccgc
     S  Q  G  W  L  C  E  L  L  R  W  K  E  N  P  S  P  E  N  R
1683 accctctgggaaaacctctgtaccatccgtcgcttcctgaaccttccccagcatgagagg
     T  L  W  E  N  L  C  T  I  R  R  F  L  N  L  P  Q  H  E  R
1743 gatgtcatctatgaggaggagtcaaggcatcaccacagcgaacgcatgcaacacgtggtc
     D  V  I  Y  E  E  E  S  R  H  H  H  S  E  R  M  Q  H  V  V
1803 cagcttcccccctgagccggtgcaggtacttcatagacagcagtctcagccagccaaggag
     Q  L  P  P  E  P  V  Q  V  L  H  R  Q  Q  S  Q  P  A  K  E
1863 agttcccctcccagagaagaagcgcctcccccacctcctccgactgaagacagttgtgcc
     S  S  P  P  R  E  E  A  P  P  P  P  P  P  T  E  D  S  C  A
1923 aaaaagccccggtctcgcacaaagatctccttagaagccctggggatcctccaaagctttt
     K  K  P  R  S  R  T  K  I  S  L  E  A  L  G  I  L  Q  S  F
1983 attcatgatgtaggcctgtacccagaccaggaagccatccacactctttcggctcagctg
     I  H  D  V  G  L  Y  P  D  Q  E  A  I  H  T  L  S  A  Q  L
2043 gatctccccaaacacaccatcatcaagttcttccagaaccagcggtaccacgtgaagcac
     D  L  P  K  H  T  I  I  K  F  F  Q  N  Q  R  Y  H  V  K  H
2103 cacgggaagctgaaagagcacctgggctccgcggtggacgtggctgaatataaggacgag
     H  G  K  L  K  E  H  L  G  S  A  V  D  V  A  E  Y  K  D  E
2163 gagctgctgaccgagtcagaggagaacgacagcgaggaaggctccgaggagatgtacaaa
     E  L  L  T  E  S  E  E  N  D  S  E  E  G  S  E  E  M  Y  K
2223 gtggaggctgaggaggaaaatgctgacaaaagcaaggcagcacctgccgaaattgaccag
     V  E  A  E  E  E  E  N  A  D  K  S  K  A  A  P  A  E  I  D  Q
2283 agataatgtgaacttctactaggcaaagcaatacatcggtccaaggatttttctgctttca
     R  *
2343 tttctttaaaagtttttttgttagtttgtttttttgttttttgttttttgggtttttttggctt

2403 tatttttgtctttttatgtctgtttttgtttttcttacccttttggacatttctttgttgc

2463 acaggatacacctatagactgaataagttcagtatttccgaatcagacatcgccttggca

2523 aagacactaaagcgttacactttatcccgtctctatgactggatcatagtcattataatc

2583 acaggagactctgccttcattatccttgcacttaacggaagttacatcaggcaagttcca

2643 ggatgaaaagaactatgaaataaatgaaggaagctacaagtgtgtgtgtatatgtatatg

2703 tatatatctctatatttacatatatatattaaaattgcatgggacagagactttgcaatc

2763 cgaaagaatagactgtgaaatgagttcttaaagaaaagacttgtttatgtattaaaaaaa

2823 ccacttcacagtgagtcgctttggcttttgataaactgcggcctgctctcagggtgggg

2883 tgactatttttgaattcctatttatttttgtgtttgtccctgatttttttttttaattc

2943 tatggcttcctatctggcagcttaatgggtaatttttgaggtatgtatttaacaaaataa

3003 acgacactgccgaaaaaaaaaaaagtgaagtgaaaacaatcagggcacattaaaatgata

3063 caagtcaaataaatcttaaagacacaatgcacacttaaaatgactcaataaaatgacttg

3123 ctacgttccgttattcaatttgtcattactgtagtgaacagatgcatttctgtggaattc

3183 caaataagtaaaactgaaattcagtgcagagaaaactttgtccactagtgcaagtcttga

3243 tcaaatgacattttgacattggacatatggaattcatagtatgagccacattttgttgtg

3303 aaatttatttacctgcttgtggcttcaaatctgaaaattaataagcctgctcgtttaaaa
```

3363 gttgtttgttgttgctgtttttttgtctttttgtttttttactagaaaatagttcagtgta

3423 atattaagttagaaaagaagttgctgcccagttaaaggggctccctctcaaataaatctc

3483 catccttccctctcccaaaagacatttctgatttctgcttcactttgggcttcctcttct

3543 tcgtacacattccatctacctaatcaaacattttcagtccctgatctctcctgtcccttt

3603 tcctgggatgacagccctaacaagaactgtttttgaatcgttgtgcagctccaggcaata

3663 gagtatgtgaagcgatttcagtagaatcacttactcatcctaaaagaaaacattatccca

3723 gttacctacatcgcaattaccttatgtaaagcagaactaatgctgactggatgtttaatg

3783 ggatgagcattaaagctgcaatctactatagtactccagatctctttcggcttcctatga

3843 gaaacaccagaagcattactttccacttctacttacagtaattgcaagaggagacctcac

3903 attcaggactggcctagtgaacgtaatccatgctttaaactggccattaaacagtcccac

3963 atggttggatttttttttttttttgagttgtgctttcacaaaaccttgtcaaagacctc

4023 atgcaatatcactttgaaagttattttctgtttactacacaaacattgtaatataactgt

4083 taatactatttatatatttgaaaggtataaaaggtaggagttaaaaaaaaaacctctatg

4143 tgtagatattaactcagaacttacaatatacagggagaagacatgttgcaatacaagcta

4203 attctagctgctcagtaacctctggagtttttaaagggacattttcctgtacttttttcaa

4263 ataatgatgtttaaaaattatcttgacataagcgtcatatacctttgcaaaaggatggtt

4323 gtttgcagttagccctggccccatccttcctatttctgtagtatgctgcagctttaatca

4383 gaaagtccatggttgctgcttcctgatctccgagttactctttccaaattgtcttcttac

4443 actgttgctgaaggtcactctgtacacgtaatggaaactgattttgccaagctcttacaa

4503 ggtggttcatctatcgatggcatccgcatttggtatcttttacacttcaaccaaaaattt

4563 attaggtatttttcaatgctaagtcttgccttttatttttttaatttcactgccaagtttg

4623 cagtggttctaagtgaatctgtgggcattttagcctgtggtcttgccagatctttgcgaa

4683 ttacaatgcatatatgtctatttattcaatatctgtcatataatatctatttggaagaag

4743 aaactttctcttgtagtgcctcttgacaaagcacaatttcccgccttttttttttttttt

4803 gtgaaatgaaaaaaacaaattgtgttttattgcggtatcaacaatgtgaataaggattaa

4863 catattgtaaatgttctttttttccatgtaaatcaactatctttgttatcactaagtgata

4923 attaatttttaacttatgtgcattgttaggctgttagaatttttttggttgttaaaataaa

4983 cgcattcaataaatatg 4999

FIGURE 7 SEQ ID NO:2 (Human amino acid sequence)

```
87 atggagcggcggagcgagagcccgtgtctgcgggacagccccgac
    M  E  R  R  S  E  S  P  C  L  R  D  S  P  D
132 cggcggagcggcagcccggacgtcaaggggcctcccccagtgaag
    R  R  S  G  S  P  D  V  K  G  P  P  P  V  K
177 gtggcccggctggagcagaacggcagccccatgggagcccgcggg
    V  A  R  L  E  Q  N  G  S  P  M  G  A  R  G
222 aggcccaacggcgccgtggccaaggccgtgggaggtttgatgatt
    R  P  N  G  A  V  A  K  A  V  G  G  L  M  I
267 cctgtcttttgtgtcgtggagcagttggacggctctcttgaatat
    P  V  F  C  V  V  E  Q  L  D  G  S  L  E  Y
312 gacaacagagaagaacacgccgagtttgtcctggtgcggaaagat
    D  N  R  E  E  H  A  E  F  V  L  V  R  K  D
357 gtgctttttagccagctggtggagactgcgctcctggccctgggg
    V  L  F  S  Q  L  V  E  T  A  L  L  A  L  G
402 tattctcacagctctgcggcccaggcccaaggaataatcaagctg
    Y  S  H  S  S  A  A  Q  A  Q  G  I  I  K  L
447 ggaaggtggaaccctctccccctcagttatgtgacagatgcaccc
    G  R  W  N  P  L  P  L  S  Y  V  T  D  A  P
492 gacgcgacagtggccgacatgctacaagatgtctatcatgttgtg
    D  A  T  V  A  D  M  L  Q  D  V  Y  H  V  V
537 acgttgaaaatccaattacaaagttgttcaaagttggaagacttg
    T  L  K  I  Q  L  Q  S  C  S  K  L  E  D  L
582 cctgcggagcagtggaaccatgccacagtccgcaatgccttaaag
    P  A  E  Q  W  N  H  A  T  V  R  N  A  L  K
627 gaactgctcaaagagatgaaccagagcacattagccaaagaatgc
    E  L  L  K  E  M  N  Q  S  T  L  A  K  E  C
672 cctctctcccagagtatgatttcatccattgtaaatagcacatat
    P  L  S  Q  S  M  I  S  S  I  V  N  S  T  Y
717 tatgccaatgtgtcagcaaccaagtgccaggagtttgggagatgg
    Y  A  N  V  S  A  T  K  C  Q  E  F  G  R  W
762 tataaaaagtacaagaagattaaagtggaaagagtggaacgagaa
    Y  K  K  Y  K  K  I  K  V  E  R  V  E  R  E
807 aacctttcagactattgtgttctgggccagcgtccaatgcattta
    N  L  S  D  Y  C  V  L  G  Q  R  P  M  H  L
852 ccaaatatgaaccagctggcatccctggggaaaaccaacgaacag
    P  N  M  N  Q  L  A  S  L  G  K  T  N  E  Q
897 tctcctcacagccaaattcaccacagtactccaatccgaaaccaa
    S  P  H  S  Q  I  H  H  S  T  P  I  R  N  Q
942 gtgcccgcattacagcccatcatgagccctggtcttctttctccc
    V  P  A  L  Q  P  I  M  S  P  G  L  L  S  P
987 cagcttagtccacaacttgtaaggcaacaaatagccatggcccat
    Q  L  S  P  Q  L  V  R  Q  Q  I  A  M  A  H
1032 ctgataaaccaacagattgccgttagccggctcctggctcaccag
    L  I  N  Q  Q  I  A  V  S  R  L  L  A  H  Q
1077 catcctcaagccatcaaccagcagttcctgaaccatccacccatc
    H  P  Q  A  I  N  Q  Q  F  L  N  H  P  P  I
1122 cccagagcagttaagccagagccaaccaactcttccgtggaagtc
    P  R  A  V  K  P  E  P  T  N  S  S  V  E  V
1167 tctccagatatctaccagcaagtcagagatgagctgaagagggcc
    S  P  D  I  Y  Q  Q  V  R  D  E  L  K  R  A
1212 agtgtgtcccaagctgtctttgcaagagtggcattcaaccgcaca
    S  V  S  Q  A  V  F  A  R  V  A  F  N  R  T
1257 cagggattgttgtctgagattctgcgtaaggaagaagaccctcgg
    Q  G  L  L  S  E  I  L  R  K  E  E  D  P  R
1302 acagcctctcagtctcttctagtaaacctgagggccatgcagaat
    T  A  S  Q  S  L  L  V  N  L  R  A  M  Q  N
```

```
1347 ttcctcaatctgccagaagtggagcgagatcgcatctaccaggat
     F  L  N  L  P  E  V  E  R  D  R  I  Y  Q  D
1392 gagagggagcggagcatgaatcccaatgtgagcatggtctcctcg
     E  R  E  R  S  M  N  P  N  V  S  M  V  S  S
1437 gcctccagcagtcccagctcctcccgaacccctcaggccaaaacc
     A  S  S  S  P  S  S  S  R  T  P  Q  A  K  T
1482 tcgacaccgacaacagacctccctattaaggtggacggcgccaac
     S  T  P  T  T  D  L  P  I  K  V  D  G  A  N
1527 atcaacatcacagctgccatttatgacgagatccaacaggagatg
     I  N  I  T  A  A  I  Y  D  E  I  Q  Q  E  M
1572 aaaagggccaaggtgtctcaagccctgtttgccaaagtggctgca
     K  R  A  K  V  S  Q  A  L  F  A  K  V  A  A
1617 aataaaagtcagggctggctgtgtgaactgctccgctggaaggag
     N  K  S  Q  G  W  L  C  E  L  L  R  W  K  E
1662 aacccaagcccagaaaaccgcacccctctgggaaaacctctgtacc
     N  P  S  P  E  N  R  T  L  W  E  N  L  C  T
1707 atccgtcgcttcctgaaccttccccagcatgagagggatgtcatc
     I  R  R  F  L  N  L  P  Q  H  E  R  D  V  I
1752 tatgaggaggagtcaaggcatcaccacagcgaacgcatgcaacac
     Y  E  E  E  S  R  H  H  H  S  E  R  M  Q  H
1797 gtggtccagcttcccccctgagccggtgcaggtacttcatagacag
     V  V  Q  L  P  P  E  P  V  Q  V  L  H  R  Q
1842 cagtctcagccagccaaggagagttcccctcccagagaagaagcg
     Q  S  Q  P  A  K  E  S  S  P  P  R  E  E  A
1887 cctcccccacctcctccgactgaagacagttgtgccaaaaagccc
     P  P  P  P  P  P  T  E  D  S  C  A  K  K  P
1932 cggtctcgcacaaagatctccttagaagccctggggatcctccaa
     R  S  R  T  K  I  S  L  E  A  L  G  I  L  Q
1977 agctttattcatgatgtaggcctgtacccagaccaggaagccatc
     S  F  I  H  D  V  G  L  Y  P  D  Q  E  A  I
2022 cacactctttcggctcagctggatctccccaaacacaccatcatc
     H  T  L  S  A  Q  L  D  L  P  K  H  T  I  I
2067 aagttcttccagaaccagcggtaccacgtgaagcaccacgggaag
     K  F  F  Q  N  Q  R  Y  H  V  K  H  H  G  K
2112 ctgaaagagcacctgggctccgcggtggacgtggctgaatataag
     L  K  E  H  L  G  S  A  V  D  V  A  E  Y  K
2157 gacgaggagctgctgaccgagtcagaggagaacgacagcgaggaa
     D  E  E  L  L  T  E  S  E  E  N  D  S  E  E
2202 ggctccgaggagatgtacaaagtggaggctgaggaggaaaatgct
     G  S  E  E  M  Y  K  V  E  A  E  E  E  N  A
2247 gacaaaagcaaggcagcacctgccgaaattgaccagagataa 2288
     D  K  S  K  A  A  P  A  E  I  D  Q  R  *
```

FIGURE 8 SEQ ID NO 3 (Mouse cDNA)

```
   1 atggagcggcggagcgagagcccgtgtcttcgggacagccccgac
     M  E  R  R  S  E  S  P  C  L  R  D  S  P  D
  46 cgaagaagcggcagcccygacgtcaaggggcctcccccggtgaag
     R  R  S  G  S  P  D  V  K  G  P  P  P  V  K
  91 gtggcccggctggagcagaacggcagccccatgggagcccgcggg
     V  A  R  L  E  Q  N  G  S  P  M  G  A  R  G
 136 aggcccaacggcgccgtggccaaggccgtgggaggtttgatgatt
     R  P  N  G  A  V  A  K  A  V  G  G  L  M  I
 181 ccagttttctgtgtggtggagcagttggatggctctcttgaatac
     P  V  F  C  V  V  E  Q  L  D  G  S  L  E  Y
 226 gacaaccgagaagagcacgctgagttcgtcttggtgcggaaagat
     D  N  R  E  E  H  A  E  F  V  L  V  R  K  D
 271 gtgctttttagccagctggtggagaccgcgctcctggccctgggg
     V  L  F  S  Q  L  V  E  T  A  L  L  A  L  G
 316 tattcccacagctctgcagcgcaggcccaaggaataatcaagcta
     Y  S  H  S  S  A  A  Q  A  Q  G  I  I  K  L
 361 gggaggtggaacccccctcccccctcagttatgtgacagacgccct
     G  R  W  N  P  L  P  L  S  Y  V  T  D  A  P
 406 gatgcgactgtggccgacatgctgcaagatgtctatcacgttgtg
     D  A  T  V  A  D  M  L  Q  D  V  Y  H  V  V
 451 acgctgaagatccaattacaaagttgttcaaagttggaagacttg
     T  L  K  I  Q  L  Q  S  C  S  K  L  E  D  L
 496 cctgcggagcaatggaaccacgccaccgtccgcaatgccttaaag
     P  A  E  Q  W  N  H  A  T  V  R  N  A  L  K
 541 gaactgctcaaagaaatgaaccagagcacattagccaaagaatgc
     E  L  L  K  E  M  N  Q  S  T  L  A  K  E  C
 586 cctctctcccagagtatgatttcatccattgtaaatagcacatac
     P  L  S  Q  S  M  I  S  S  I  V  N  S  T  Y
 631 tatgccaatgtgtcagcaaccaagtgccaggagtttgggagatgg
     Y  A  N  V  S  A  T  K  C  Q  E  F  G  R  W
 676 tacaaaaagtataagaagataaaagtggaaagagtggagcgagag
     Y  K  K  Y  K  K  I  K  V  E  R  V  E  R  E
 721 aacctttcagactattgtgttctgggccagcggccaatgcattta
     N  L  S  D  Y  C  V  L  G  Q  R  P  M  H  L
 766 ccaaatatgaaccagctggcatccctgggcaaaaccaacgaacag
     P  N  M  N  Q  L  A  S  L  G  K  T  N  E  Q
 811 tctcctcatagccaaatccaccacagtactccaatccgaaaccaa
     S  P  H  S  Q  I  H  H  S  T  P  I  R  N  Q
 856 gtgcccgcactccagcccatcatgagccctggtcttctctcaccg
     V  P  A  L  Q  P  I  M  S  P  G  L  L  S  P
 901 cagctcagtcctcagcttgtcaggcagcaaatagccatggcccat
     Q  L  S  P  Q  L  V  R  Q  Q  I  A  M  A  H
 946 ctgataaaccaacagatagccgttagccgactcctggctcaccag
     L  I  N  Q  Q  I  A  V  S  R  L  L  A  H  Q
 991 catcctcaagccatcaaccagcagttcttgaaccacccacccatt
     H  P  Q  A  I  N  Q  Q  F  L  N  H  P  P  I
```

```
1036 cccagagcagttaagccagagccaacaaactcctctgtggaagtc
     P  R  A  V  K  P  E  P  T  N  S  S  V  E  V
1081 tctcctgatatctaccagcaagttagagatgagttgaagagggct
     S  P  D  I  Y  Q  Q  V  R  D  E  L  K  R  A
1126 agtgtgtctcaagctgtctttgcaagagtggcattcaaccgcaca
     S  V  S  Q  A  V  F  A  R  V  A  F  N  R  T
1171 cagggattattgtcagagatactgcgtaaggaagaagatcccagg
     Q  G  L  L  S  E  I  L  R  K  E  E  D  P  R
1216 actgcgtctcagtctcttctagtaaacctgagggccatgcagaac
     T  A  S  Q  S  L  L  V  N  L  R  A  M  Q  N
1261 ttcctcaacctgcctgaagtggagcgtgatcgcatttaccaggat
     F  L  N  L  P  E  V  E  R  D  R  I  Y  Q  D
1306 gagcgagagaggagcatgaaccccaatgtgagcatggtctcctct
     E  R  E  R  S  M  N  P  N  V  S  M  V  S  S
1351 gcctctagcagtcccagctcctcccgaaccccacaggccaaaacc
     A  S  S  S  P  S  S  S  R  T  P  Q  A  K  T
1396 tcgacaccgacaacagacctccctattaaggtggacggcgccaac
     S  T  P  T  T  D  L  P  I  K  V  D  G  A  N
1441 gtcaacatcacagctgccatttatgacgagatccaacaggagatg
     V  N  I  T  A  A  I  Y  D  E  I  Q  Q  E  M
1486 aaaagagccaaggtgtctcaagccctgtttgccaaagtggctgca
     K  R  A  K  V  S  Q  A  L  F  A  K  V  A  A
1531 aacaaaagtcagggctggctttgcgaactgcttcgttggaaggag
     N  K  S  Q  G  W  L  C  E  L  L  R  W  K  E
1576 aaccccagcccagaaaaccgcacccttgggagaatctctgcacc
     N  P  S  P  E  N  R  T  L  W  E  N  L  C  T
1621 atccgccgtttcctgaatcttccccaacatgagcgggatgtgatc
     I  R  R  F  L  N  L  P  Q  H  E  R  D  V  I
1666 tatgaggaagaatctcgacatcaccacagtgaacgcatgcagcat
     Y  E  E  E  S  R  H  H  H  S  E  R  M  Q  H
1711 gtggtccagctcccacctgagcccgtgcaggtccttcatcgacag
     V  V  Q  L  P  P  E  P  V  Q  V  L  H  R  Q
1756 cagtcccagccaactaaggagagctcccctcccagagaagaagca
     Q  S  Q  P  T  K  E  S  S  P  P  R  E  E  A
1801 cccccaccgcctcctccaacagaagacagctgtgccaaaaagcct
     P  P  P  P  P  P  T  E  D  S  C  A  K  K  P
1846 cggtctcgcacaaagatctctttggaagccctgggcatccttcaa
     R  S  R  T  K  I  S  L  E  A  L  G  I  L  Q
1891 agcttcatccatgatgtaggcctctatcccgaccaggaagccatc
     S  F  I  H  D  V  G  L  Y  P  D  Q  E  A  I
1936 cacacactctccgcccagctggatctccccaaacacaccatcatc
     H  T  L  S  A  Q  L  D  L  P  K  H  T  I  I
1981 aagttcttccagaaccagaggtaccacgtgaagcaccacgggaag
     K  F  F  Q  N  Q  R  Y  H  V  K  H  H  G  K
2026 ctgaaagagcacctgggctccgcggtggacgtggctgaatataag
     L  K  E  H  L  G  S  A  V  D  V  A  E  Y  K
2071 gacgaggagctgctgaccgagtcagaggagaacgacagcgaggaa
     D  E  E  L  L  T  E  S  E  E  N  D  S  E  E
2116 ggctccgaggagatgtacaaagtggaggctgaggaggaaaatgct
     G  S  E  E  M  Y  K  V  E  A  E  E  E  N  A
2161 gacaaaagcaaggcagcacctgccgaaattgaccagagataa 2202
     D  K  S  K  A  A  P  A  E  I  D  Q  R  *
```

FIGURE 9 SEQ ID NO:4 Mouse protein sequence

```
001     MERRSESPCL RDSPDRRSGS PDVKGPPPVK VARLEQNGSP MGARGRPNGA
051     VAKAVGGLMI PVFCVVEQLD GSLEYDNREE HAEFVLVRKD VLFSQLVETA
101     LLALGYSHSS AAQAQGIIKL GRWNPLPLSY VTDAPDATVA DMLQDVYHVV
151     TLKIQLQSCS KLEDLPAEQW NHATVRNALK ELLKEMNQST LAKECPLSQS
201     MISSIVNSTY YANVSATKCQ EFGRWYKKYK KIKVERVERE NLSDYCVLGQ
251     RPMHLPNMNQ LASLGKTNEQ SPHSQIHHST PIRNQVPALQ PIMSPGLLSP
301     QLSPQLVRQQ IAMAHLINQQ IAVSRLLAHQ HPQAINQQFL NHPPIPRAVK
351     PEPTNSSVEV SPDIYQQVRD ELKRASVSQA VFARVAFNRT QGLLSEILRK
401     EEDPRTASQS LLVNLRAMQN FLNLPEVERD RIYQDERERS MNPNVSMVSS
451     ASSSPSSSRT PQAKTSTPTT DLPIKVDGAN VNITAAIYDE IQQEMKRAKV
501     SQALFAKVAA NKSQGWLCEL LRWKENPSPE NRTLWENLCT IRRFLNLPQH
551     ERDVIYEEES RHHHSERMQH VVQLPPEPVQ VLHRQQSQPT KESSPPREEA
601     PPPPPPTEDS CAKKPRSRTK ISLEALGILQ SFIHDVGLYP DQEAIHTLSA
651     QLDLPKHTII KFFQNQRYHV KHHGKLKEHL GSAVDVAEYK DEELLTESEE
701     NDSEEGSEEM YKVEAEEENA DKSKAAPAEI DQR
```

TABLE 1: **Oligonucleotides used in the Study.**

Marker	Oligonucleotide Primers	YACs isolated	Chimeric by FISH	SEQ ID NO
D2S311	dCAATTTTGAGCCCGGAAG	17GD1	+	5
	dTGACTAGAAAGGCATTCCAGAG	31CH5	-	6
		33AC9	-	
D2S115	dCAAGAACAGCCATATTGACTTGAAC	11GG8	-	7
	dGGGTACAGCCCATGTGTGAG			8
D2S348	dAGGTGACCAGCAGCCTCT	19ID10	ND	9
	dGTAAAACGGACATATCCCCC	21GA12	ND	10
		23EG11	ND	
		32EB9	ND	
D2S72	dAGCTATAATTGCATCATTGCA	26IF5	-	11
	dTGGTCTATAACGGTCTATG			12
D2S105	dCTCTACAGTTTATAACCAGC	26IF5	-	13
	dTACACTGGATTCATATTCCC			14
CTLA4	dATTTCAATTTCCAAGAGCTGAGG	26IF5	-	15
	dGCTGATGTGACAGAAACATCCC	8IH5	ND	16
		13HC12	ND	
		20AG2	ND	
		22HB6	ND	
D2S307	dCATGACCTGAAATAAACATAGACA	26IF5	-	17
	dDAGCTTTTCCTGTAGGCTGTC	22HB6	ND	18
		6BC7	ND	
D2S1384	dAATAGAGGGCCCTTGCTTAA	26IF5	-	19
	dTTTGGGATAAAAGGTATTTTGC	22HB6	ND	20
		10GF2	ND	
WI5293	dGAGTTAGACCCCGTCTAAAAAAA	26IF5	-	21
	dACTCTCATCTCCTTCCTTGTTCC	8BG7	ND	22
		14HA2	-	
		24GF8	ND	
D2S2189	dTACAAAAGGACTTGTCCAGGG	8BG7	ND	23
	dTCAAGATTGCCGTGAGGT	14HAZ	-	24

		23CE7	ND	
		24GF8	ND	
D2S1271	dGGAAGGTCCAGATTAGAAG	15BA12	ND	25
	dAAGGGAAATAAAGAGAAGCAT	22HC8	ND	26
D2S116	dCAATCTCCACAAGTTGCTCA	6HA11	-	27
	dGGGATAGATAATTTAGGAGTGGG	13BE7	ND	28
		14DE4	ND	
		16IB4	+	
		28DE5	ND	
D2S309	dGCTCTAGTAGGCTGGTTACATAA	4EC12	+	29
	dTTCCAAGAATAATGCAATCTCAG	31DH5	+	30
FN1	dTTGTTCCTACAGTATTGCGGG	7AH3	+	31
	dCCAACCCAAGATGCAAATG	11GH11	ND	32
		31GG9	-	
		37HB8	ND	
IGFBP5	dCTATTGGGGTTTCCCAGGAT	21EC3	-	33
	dTTTCCAATATTGGGGCATGT	22DB10	ND	34
IGFBP2	dCAGTAGACCGCAGCCAGC	7FA11	ND	35
	dGGAAAGCAAGAAGGAGCAGG	8HF12	ND	36
		21EC3	-	
		22DB10	ND	
IHH	dGGACTCCACCTGGAACTGC	35EF10	-	37
	dGAAAACTCGTAGTGAGAGCAG			38

TABLE 2: Genetic Map of CP-1 Region

A	Cen	B	Cen	
	D2S311		D2S311	der(2)
			D2S374	⇐
			D2S1413	⇐
	D2S2327		D2S115	der(7)/der(11)
			D2S348	der(7)/der(11)
	D2S2396		D2S72	der(7)/der(11)
			(D2S2327)	
	D2S374		(D2S2396)	
	D2S2217		D2S105	der(7)/der(11)
			CTLA4	der(7)/der(11)
	1.4cM		D2S307	der(7)/der(11)
			(D2S2217)	
	D2S2392		(D2S2392)	
	0.1 cM		(D2S1740)	
			(D2S2708)	
	D2S309		(D2S1837)	
			(D2S2684)	
	Tel		(D2S1367)	
			D2S1384	der(7)/der(11)
			WIS293	der(7)/der(11)
			D2S2189	der(7)/der(11)
			D2S1271	der(7)/der(11)
			D2S116	der(7)/der(11)
			D2S309	der(7)/der(11)
			Tel	